



### REMARKS

Claims 12-15, 17 and 21-31 are now pending in the present invention. Claims 4-7, 16 and 18 have been cancelled; Claims 12-14, 21, 23, and 24 have been amended; and Claims 25-31 are new. Basis for the amendments and new claims can be found throughout the specification, claims and drawings as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

### REJECTION UNDER 35 U.S.C. § 103

Claims 12, 15, 17 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yamada* (U.S. Pat. No. 6,237,678) in view of *Terai et al.* (U.S. Pat. No. 4,203,490). Claims 13, 22 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yamada* and *Terai et al.* as applied to Claims 12 and 21, and further in view of *Evans et al.* (U.S. Pat. No. 5,771,962). These rejections are respectfully traversed.

In amended Claims 12 and 21 of the present invention, the sacrifice anode layer is generally uniformly clad on the entire one side of the core, and the brazing material for brazing the tube and the outer fin is placed on the sacrifice anode layer of the two-layer aluminum alloy plate for forming the tube. That is, after the two-layer aluminum alloy plate with the sacrifice anode layer is formed, the brazing material is applied on the sacrifice anode layer. Therefore, it is unnecessary to melt the sacrifice anode layer in the brazing operation and only the brazing material is melted. Further, the third aluminum alloy of the sacrifice anode layer is electro-chemically base with respect to

the second aluminum alloy of the core. Therefore, the sacrifice anode layer clad on the entire one side of the core prevents the entire one side of the core from being corroded, on the entire one side of the core.

In *Terai et al.* ('490), the fin member (1) is made of aluminum-base alloy containing an so that the core metal layer of the tube is electro-chemically noble with respect to the fin member. Therefore, it is impossible to diffuse the Sn to the entire surface of the tube. That is, only a part of the outer surface of the tube close to the fin member has the corrosion resistance. On the other hand, the cladding metal layer (3) is a brazing material layer for brazing the tube and the outer fin. The cladding metal layer (3) as the brazing material is directly clad on the core material layer (2) **without a sacrifice anode layer**. *Terai et al.* describes that the cladding metal layer is comparatively in an anodic state in contrast to the core metal as indicated by the Examiner. However, the cladding metal layer as the brazing material is **melted** while brazing, and is impossible to be uniformly formed on the entire core metal. That is, the brazing material is collected to a join portion between the outer fin (1) and the tube (2) after brazing as shown in FIGS. 1 and 2 of *Terai et al.* A part of the surface of the core metal at a position separated from the outer fin may be exposed outside after the brazing. Thus, the cladding metal layer (3) used as the brazing material cannot prevent the corrosion on the entire outer surface of the tube.

Further, the Examiner's other documents do not teach or suggest the above-described features of amended claim 12 and 21 of the present invention.

Thus, Applicants believe Claims 12 and 21, as amended, patentably distinguish over the art of record. Likewise, Claims 13, 15 and 17; which ultimately depend from

Claim 12, and Claims 22 and 23, which ultimately depend from Claim 21, are also believed to patentably distinguish over the art of record.

Reconsideration of the rejection is respectfully requested.

#### **REJOINDER**

Applicants respectfully request the rejoinder of withdrawn Claims 14 and 24.

#### **NEW CLAIMS**

New Claim 25 is an independent claim which includes the limitations that have been added to Claims 12 and is, thus, believed to be allowable. New Claims 26-31 are dependent claims that ultimately depend from Claim 25. Applicants believe Claim 25 reads on the elected species. Applicants request that Claims 26-31, which do not read on the elected species, be rejoined.

#### **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: July 7, 2003

By: 

Michael J. Schmidt  
Reg. No. 34,007

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

MJS/lf-s